agree as to the nature of the Pwdre Ser, and I must say that whenever I have observed its manner of occurrence it has seemed to me to grow out of the sod—but I would not like to say that what I have seen has always been the same kind of matter.

The very circumstantial account given by Morton, that something of the kind is disgorged by birds, is confirmed by other later observers.

Although we must not too hastily accept what is undoubtedly a *vera causa* as the only explanation, we may feel that we are moving in the right direction to find the answer to the question, What is it?

The question why it is associated with falling stars has received a plausible explanation from Messrs. Grove and Griffiths (NATURE, July 21); but falling stars do not appear to hit the ground so that an observer can walk up to the spot where they seem to have fallen, as in the case of lightning or thunderbolts, and if we bring in possibilities of other luminous bodies we raise the difficult question of lambent fires, &c. The star-like radiating form of the jelly-fish, like that of the star-fish, is sufficient to explain the name given by Admiral Smyth (July 21, p. 73).

While our botanical friends are finding out for us what it is, may I hope that some of our literary friends will trace the belief back further than the sixteenth century, when we find it accepted as if founded upon well-known facts? T. MCKENNY HUGHES.

July 29.

The Blood sucking Conorhinus.

IT may interest readers of NATURE to be informed that the great South American bug figured on p. 142 of the issue of August 4 punished Charles Darwin when travelling in the Pampas, happily without infecting him with its trypanosome (see "Journal of a Naturalist," ed. 1845 p. 330). J. D. H.

The Camp, near Sunningdale, August 5.

[SUBJOINED is the description to which our correspondent refers.—ED. NATURE.]

"WE slept in the village of Luxan, which is a small place surrounded by gardens, and forms the most southern cultivated district in the Province of Mendoza; it is five leagues south of the capital. At night I experienced an attack (for it deserves no less a name) of the *Benchuca*, a species of Reduvius, the great black bug of the Pampas. It is most disgusting to feel soft, wingless insects about an inch long crawling over one's body. Before sucking they are quite thin, but afterwards they become round and bloated with blood, and in this state are easily crushed. One which I caught at Iquique (for they are found in Chile and Peru) was very empty. When placed on a table, and though surrounded by people, if a finger was presented the bold insect would immediately protrude its sucker, make a charge, and, if allowed, draw blood. No pain was caused by the wound. It was curious to watch its body during the act of sucking, as in less than ten minutes it changed from being as flat as a wafer to a globular form. This one feast, for which the benchuca was indebted to one of the officers, kept it fat during four whole months; but, after the first fortnight, it was quite ready to have another suck."

The Early History of Non-Euclidean Geometry.

IN a recent number of NATURE (June 30) there appeared a review of a book by G. Mannoury on the philosophy of mathematics, and the reviewer emphasised a statement of the author to the effect that the claim for Gauss that he was the first to assert the possibility of a non-Euclidean geometry is threatened by F. K. Schweikart, who in December, 1818, sent a note to Gauss asserting the existence of a geometry in which the sum of the angles of a triangle is less than two right angles. The facts about Schweikart were made known fifteen years ago by Stackel and Engel ("Theorie der Parallellinien," p. 243), and the actual documents were published in Gauss's "Werke," Bd. viii. (1900). It must be admitted that Schweikart arrived independently at this result, though it is not so obvious that he had forestalled the "giant mathematician." Schwaikart states his hypothesis very clearly, and explains that Euclidean geometry is a special case of a more general geometry. On the other hand, Gauss was interested in the theory of parallels from at least 1799; and some time between 1808 and 1816 he arrived at the belief that non-Euclidean geometry was possibly true, for in 1808 he asserted that the idea of an *a priori* linear constant (the "space-constant") was absurd, while in 1816 he declared that, while seemingly paradoxical, this idea was in no way self-contradictory, and that Euclid's geometry might not be the true one. In his comments on Schweikart's note, he exhibits quite an extensive knowledge of non-Euclidean trigonometry.

Of course, the development of non-Euclidean geometry and trigonometry is due independently to Lobachevskij (1829), and Bolyai (1832), and even that was worked out to a large extent previously by Lambert (1786), and still earlier by the Italian Jesuit Saccheri (1733), though neither of these two conceived for a moment the possibility of non-Euclidean geometry being true.

It is interesting in this connection to recall the hesitancy of Cayley to accept non-Euclidean geometry, although he himself practically inaugurated a new epoch. He never seemed quite to appreciate the subject, and on one occasion, at least, fell into a mistake in writing about it. In his article "On the Non-Euclidean Plane Geometry," Math. Papers, vol. xiii., p. 237, he inadvertently takes the equatorial circle of the pseudosphere (the surface of revolution of the tractrix) as representing the points at infinity, whereas the absolute is only represented by a single point, viz. the point at infinity on the pseudosphere.

D. M. Y. SOMMERVILLE.

The University, St. Andrews, July 26.

The Total Solar Eclipse of April 28, 1911.

WHILST astronomers who intend to observe this eclipse are choosing from amongst the Vavau, Tau, Nassau, and Danger Islands, the best one on which to land, it may be useful to state the totalities of the eclipse in these islands.

From the calculation of the phases obtained by the Besselian method, and with the data of the "American Ephemeris," I have found the following values:—

		m.	s.
Vavau (arch. of Tonga)	Totality =	3	36·6
Tau (arch. of Samoa)	,, =	2	13·0
Danger (arch. of Union)	,, =	3	19·4
Nassau (,,)	,, =	4	9·9

The geographical coordinates of these islands, adopted in the calculations, are respectively:—

Islands	λ	φ
Vavau	− 173° 59·0′ ...	− 18° 39·0′
Tau	− 169 32·0 ...	− 14 13·5
Danger	− 165 45·0 ...	− 10 53·0
Nassau	− 165 25·0 ...	− 11 33·0

Rome, July 29. PIO EMANUELLI.

Mars in 1909 as seen at the Lowell Observatory.

THE accompanying prints are photographs of the globe of Mars, representing the details seen on the planet at the Lowell Observatory at the last opposition in 1909.

These maps demonstrate strikingly the development of the canals from the melting cap, shown by the number of canals visible in the southern hemisphere at the time, especially about the south pole, and by the absence of canals in the northern one, notably in the neighbourhood of the north polar cap.

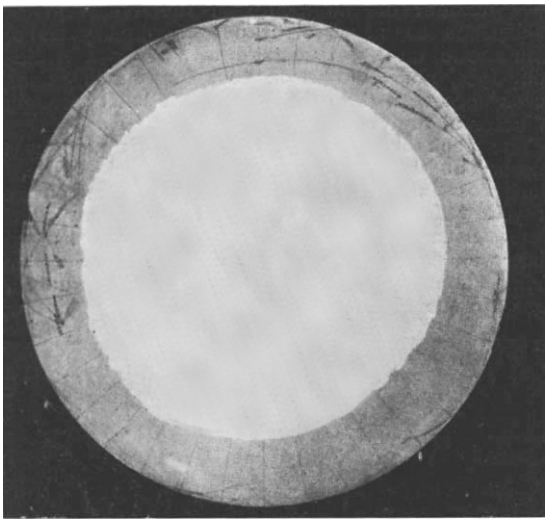
The canals numbered 659 or 660 are the two great new canals, of which the account has already been published, and of which the size enabled the advent to be established with certainty. Several other examples of fresh origination are to be seen on the charts, about which the evidence is hardly less conclusive.

The white patches at some distance from the south pole

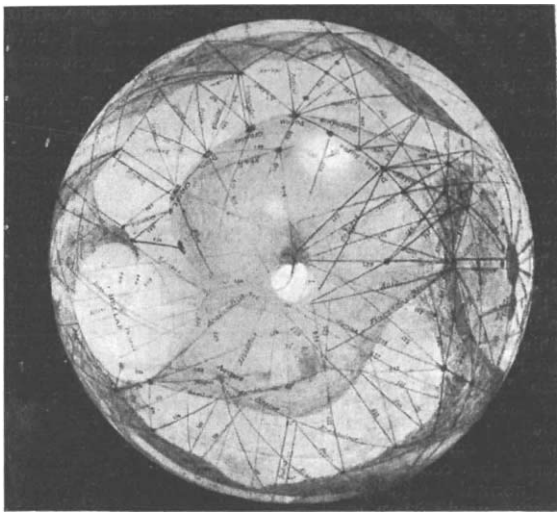
mark the first frost of the autumn in the planet's southern hemisphere. These patches were photographed, as were also many of the canals.

The number of the latter photographed at Flagstaff since 1905 is between fifty and one hundred.

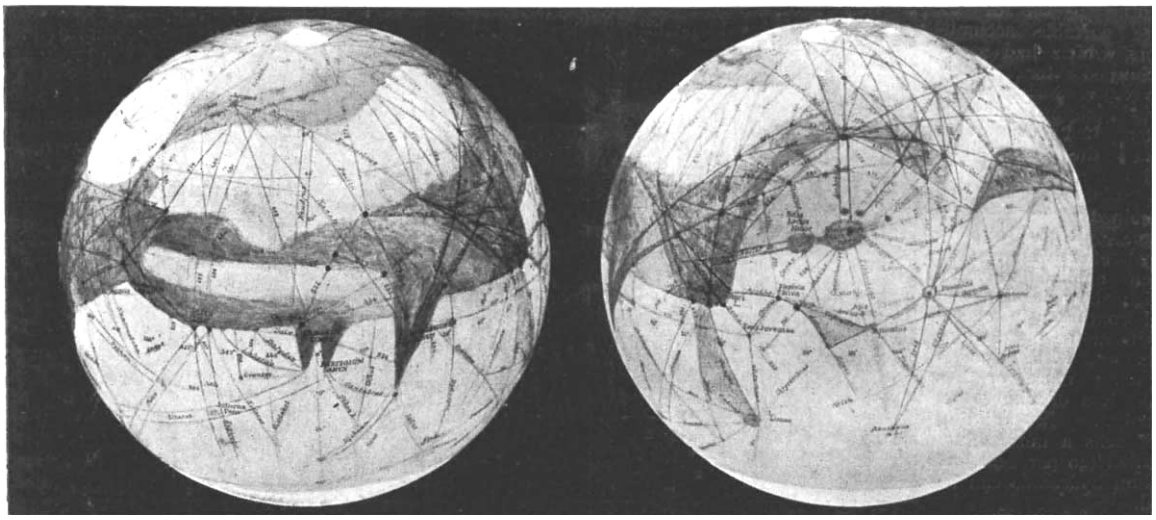
Boston, U.S.A., July 22. PERCIVAL LOWELL.



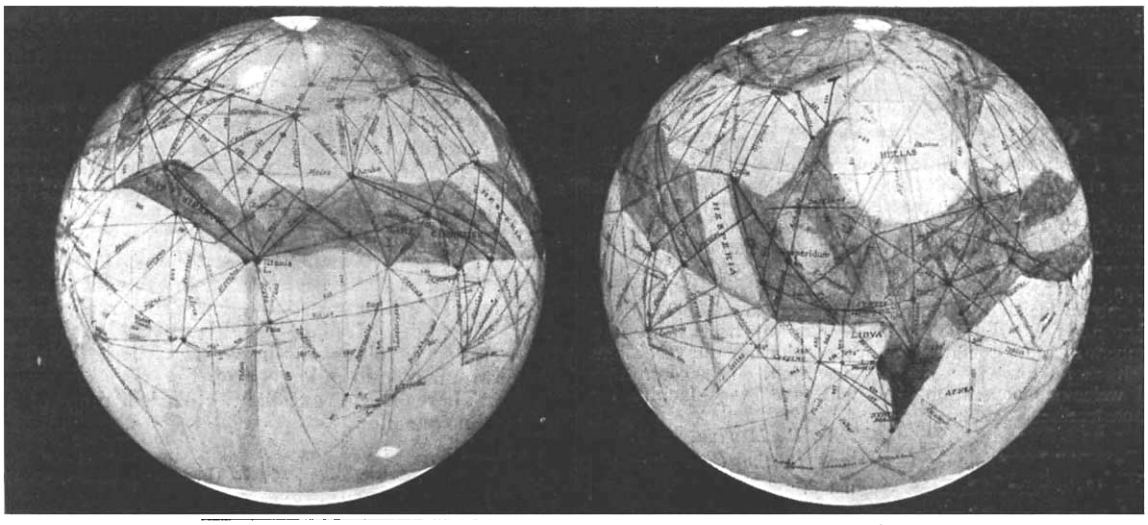
North Pole.



South Pole



λ=0°. λ=90°.



λ=180°. λ=270°.

Lowell Observatory Photographs of Mars in 1909.